

Application No. 10/634,262

Filed: August 5, 2003

TC Art Unit: 1638

Confirmation No.: 7055

REMARKS

The Applicants have reviewed the application and corrected various typographical and administrative errors, as requested by the Examiner. (The Applicants point out that on p. 16, "indicated" is already recited at line 14 and no related word is recited at line 15.) A replacement Sequence Listing, including a replacement CRF, will be submitted by mail shortly.

Claim 1 has been amended as indicated above and new claims 8-10 are now added. The changes to claim 1 are supported in the specification at least as indicated below in an annotated version of amended claim 1:

An isolated nucleic acid molecule that encodes a polypeptide having starch synthase activity, said polypeptide comprising an N-terminal arm region, a C-terminal catalytic region and a region of about 450 amino acids N-terminal to said catalytic region,

wherein said C-terminal catalytic region begins with a catalytic domain [support: p. 28, ll. 3-4] comprising alpha-1,4-glycosyltransferase catalytic activity [support: p. 25, ll. 23-24];

wherein a nucleic acid sequence encoding said region of about 450 amino acids N-terminal to said catalytic domain in said catalytic region has at least 75% homology with the region from about nt 2425 to about nt 3791 of SEQ ID NO:1 [support: p. 28, ll. 2-6]; and

wherein said N-terminal arm region of said polypeptide comprises an amyloplast targeting peptide [support: p. 25, ll. 24-25].

Application No. 10/634,262

Filed: August 5, 2003

TC Art Unit: 1638

Confirmation No.: 7055

New claims 8-10 are supported in the specification at least at p. 22, lines 7-10. Therefore, Applicants submit that no new matter has been added by any of these amendments.

Claims 1-7 have been rejected under 35 USC § 112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed for the reasons indicated below and reconsideration is requested.

The Examiner objects to claim 1 as overly broad, saying first that the claims are broadly drawn to isolated nucleic acid molecules encoding a starch synthase comprising an N-terminal arm from any source and of any sequence and a C-terminal catalytic region from any source and of any sequence. With respect, the Applicants point out that the N-terminal arm of the encoded polypeptide must comprise an amyloplast targeting peptide [support at least at p. 25, lines 24-25] and that the C-terminal catalytic region must comprise alpha-1,4-glycosyltransferase catalytic activity [support at least at p. 25, lines 23-24]. Furthermore, claim 1 (as amended) also requires that the polypeptide encoded by the claimed isolated nucleic acid molecule have starch synthase activity. Therefore, the referenced regions cannot be just of "any" sequence, as asserted by the Examiner.

Application No. 10/634,262

Filed: August 5, 2003

TC Art Unit: 1638

Confirmation No.: 7055

Second, the Examiner states that "the particular 2425 to 5022 nucleotide region of SEQ ID NO:1, or its encoded peptide, is nowhere recited in the specification." The Applicants have amended claim 1 to recite, in the second "wherein" clause:

wherein a nucleic acid sequence encoding said region of about 450 amino acids N-terminal to said catalytic domain in said catalytic region has at least 75% homology with the region from about nt 2425 to about nt 3791 of SEQ ID NO:1;

The nucleic acid sequence from about nt 2425 to about nt 3791 of SEQ ID NO:1, encoding a region of about 450 amino acids N-terminal to the catalytic domain in the catalytic region of the encoded polypeptide, is supported in the specification, e.g., at p. 28, lines 2-6. Therefore, the Examiner's assertion that "the particular 2425 to 5022 nucleotide region of SEQ ID NO:1, or its encoded peptide, is nowhere recited in the specification" is made moot.

Claims 1-7 have also been rejected under 35 USC § 112, first paragraph, as failing to comply with the enablement requirement. This rejection is respectfully traversed for the reasons indicated below and reconsideration is requested.

The Examiner asserts that no guidance is given for practicing the invention as claimed. The Applicants submit that the Examiner

Application No. 10/634,262
Filed: August 5, 2003
TC Art Unit: 1638
Confirmation No.: 7055

is reading the pending claims beyond their literal meaning. The Applicants assert that one of ordinary skill, reading the Applicants' specification, would understand how to practice the invention as claimed. For example, claim 4 recites "a host cell transfected with the vector of claim 3" (emphasis added), i.e., a cell that has been changed or transfected. Similarly, claim 5 extends only to a plant that is transgenic, i.e., that has incorporated the recited transfecting vector.

Furthermore, in response to the Examiner's comments concerning the central portion of the starch synthase gene, the Applicants remind the Examiner that what is claimed is "an isolated nucleic acid molecule that encodes a polypeptide having starch synthase activity. To make this aspect of the claim even more clear, claim 1 has been amended to recite this limitation as a fourth "whereas" clause. Thus, Applicants submit that the scope of the claims does not extend beyond what is enabled by the teachings of the specification and the rejection is overcome.

Finally, claims 1-7 have been rejected for obviousness-type double patenting over US Patent No. 6,639,125. A terminal disclaimer in compliance with 37 CFR § 1.321(c) is enclosed herewith.

-10-

WEINGARTEN, SCHURGIN,
GAGNERIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

Application No. 10/634,262
Filed: August 5, 2003
TC Art Unit: 1638
Confirmation No.: 7055

The Applicants submit that all claims are in condition for allowance and such action is requested.

The Examiner is encouraged to telephone the undersigned attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

ALAN M. MYERS ET AL.

By: Holliday C. Heine
Holliday C. Heine, Ph.D.
Registration No. 34,346
Attorney for Applicant(s)

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
Ten Post Office Square
Boston, MA 02109
Telephone: (617) 542-2290
Telecopier: (617) 451-0313

HCH/raw
312840-1

-11-

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313